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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,720

12/11/2006

Ulrike Schulz

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EXAMINER

AMARI, ALESSANDRO V

ART UNIT

PAPER NUMBER

2872

NOTIFICATION DATE

DELIVERY MODE

11/26/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

indocket@btlaw.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/573,720	<b>Applicant(s)</b> SCHULZ ET AL.	
	<b>Examiner</b> ALESSANDRO AMARI	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/27/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 and 8-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schulz et al (hereafter “Schulz”) “Symmetrical periods in antireflective coatings for plastic optics”.

In regard to claim 1, Schulz discloses (see Table 3) an optical layer system for reducing the reflection of optically transparent substrates, having layers of material with a lower optical refractive index and layers of material with a higher optical refractive index disposed alternately on the surface of a substrate, from which layers layer stacks with at least one layer of a material with a higher optical refractive index, which is enclosed by two layers made of a material with a lower optical refractive index, are formed, the layer stacks have an equivalent optical refractive index with respect to a prescribable wavelength  $\lambda$  which is lower than the optical refractive index of the substrate; thereby at least two layer stacks are formed one above the other, the respective equivalent optical refractive index of which is reduced, starting from the substrate and the individual layer stacks have an optical thickness which corresponds at least to twice  $\frac{1}{4}$  of the prescribable wavelength  $\lambda$  as described on pages 1350-1351 and as shown in Table 3.

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Regarding claim 2, Schulz discloses that the equivalent optical refractive index of each layer stack is lower than the optical refractive index of a material from which layers with a lower optical refractive index are formed as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 3, Schulz discloses wherein none of the individual layers H and L of the layer system have an optical layer thickness which corresponds to an integer multiple of  $\frac{1}{4}$  of the prescribable wavelength as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 4, Schulz discloses including a layer which is formed directly on the surface of the substrate and formed from a material, the optical refractive index of which is lower than the optical refractive index of the substrate, forms a  $\lambda/4$  layer as described on pages 1350-1351 and as shown in Table 3.

Regarding claims 5 and 17-20, Schulz discloses that the optical refractive index of the substrate is  $\leq 2$  as described on the top of the first column on page 1347.

Regarding claim 8, Schulz discloses that the individual layer stacks (B, C, D, E) are formed from three, five or seven layers as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 9, Schulz discloses that the uppermost layer, which points in the direction of faces the surrounding medium and is made of the material with a lower optical refractive index, has an optical layer thickness which is greater than  $\frac{1}{4}$  of the prescribed wavelength  $\lambda$  as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 10, Schulz discloses that the layer thickness proportion in the layer stacks of layers which are formed from a material with a higher optical refractive index is increased starting increases from the substrate surface in the direction of the surrounding medium as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 11, Schulz discloses that in the layer system has a thickness in the range between 800 and 3000 nm as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 12, Schulz discloses that the prescribed wavelength  $\lambda$  is selected from the wavelength range between 480 and 600 nm as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 13, Schulz discloses that none of the individual layers of the layer system have an optical layer thickness which corresponds to an integer multiple of  $\frac{1}{4}$  of the prescribable wavelength as described on pages 1350-1351 and as shown in Table 3.

Regarding claim 14, 15, and 16, Schulz discloses including a layer which is formed directly on the surface of the substrate and formed from a material, the optical refractive index of which is lower than the optical refractive index of the substrate, forms a  $\lambda/4$  layer as described on pages 1350-1351 and as shown in Table 3.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schulz "Symmetrical periods in antireflective coatings for plastic optics".

Regarding claims 6 and 7, Schulz teaches the invention as set forth above but does not teach that the optical refractive index of which is lower is formed from SiO<sub>2</sub> or MgF<sub>2</sub> or that the layers, the optical refractive index of which is higher, are formed from at least one of TiO<sub>2</sub>, HfO<sub>2</sub>, ZrO<sub>2</sub>, Ta<sub>2</sub>O<sub>5</sub>, and/or Nb<sub>2</sub>O<sub>5</sub>. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the materials recited for the low and high refractive index layers, since it has been held to be within the ordinary skill of a worker in the art to select a known material on the basis of its suitability for the intended use. One would have been motivated to utilize the materials recited for the purpose of improving the antireflective properties of the optical layer system. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945)

### **Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Howe US 3,737,210 teaches an optical layer system relevant to the invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALESSANDRO AMARI whose telephone number is

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(571)272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ava  
20 November 2008

/Alessandro Amari/  
Primary Examiner, Art Unit 2872